

Mesa Verde National Park

Site Conservation Program

Stabilization at 5MV3559, 5MV3543, 5MV3564

**Preservation Maintenance Assessment at 5MV542, 5MV544,
5MV548**

Field Season 2000

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Abstract

Three cliff dwellings (Sites 5MV3559, 5MV3543 and 5MV3564) in the backcountry of Mesa Verde National Park were stabilized during the summer field season, 2000. These sites were all located in Soda Canyon within the confines of the Chapin #5 Fire that burned in 1996. Soda Canyon was the only area that had been granted clearance for stabilization treatments as part of the Mesa Verde National Park Site Conservation Program. Three additional sites (5MV542, 5MV544 and 5MV548) were evaluated in order to assess the amounts of materials and time needed to conduct preservation maintenance. Funding for this program was primarily from the Save America's Treasures Program.

Four rooms received fabric treatment intervention. One room/wall was treated in each of two sites, 5MV3543 and 5MV3564. Two rooms were treated in site 5MV3559. A mud mortar amended with Rhoplex E-330 (an acrylic polymer) was used at 5MV3559 and 5MV3543 while an unamended mud mortar was used at 5MV3564.

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Chapter 1

Introduction

Three cliff dwellings (Sites 5MV3559, 5MV3543 and 5MV3564) in the backcountry of Mesa Verde National Park were stabilized during the summer field season, 2000. These sites are located in Soda Canyon within the confines of the Chapin #5 Fire that burned in 1996. Soda Canyon was the only area that had been granted clearance for stabilization treatments as part of the Mesa Verde National Park Site Conservation Program. Three additional sites (5MV542, 5MV544 and 5MV548) were evaluated to assess the amount of materials and time needed to conduct preservation maintenance. Funding for this project was primarily from the Save America's Treasure's Program Figure 1.1).

Four rooms received fabric treatment intervention. One room/wall was treated in each of two sites, 5MV3543 and 5MV3564. Two rooms were treated in 5MV3559. A mud mortar amended with Rhoplex E-330 (an acrylic polymer) was used at 5MV3559 and 5MV3543 while an unamended mud mortar was utilized at 5MV3564.

Site Conservation Program

The purpose of the Mesa Verde National Park Site Conservation Program is to provide standardized names and procedures for describing, recording, and evaluating the preservation and management of archeological sites (Nordby et al. 2000: 1). Stabilization and other site preservation treatments are recommended as sites are evaluated. Standing walls can be stabilized by repointing with mortar, resetting loose stones, and replacing stones.

This physical stabilization (fabric treatment intervention) of sites is conducted as an integral part of the documentation of archeological sites in the Site Conservation Program.

Site preservation treatment is one of the links in the chain of conservation events, which begin with the varying levels of documentation. The most general site documentation is Level 3, archeological survey. Level 2, condition assessment, provides information on the physical condition of archeological structures and features. Based on the observations recorded during the Level 2 condition assessment, stabilization in the form of fabric treatment intervention may be recommended. If this is the case, Level 1, the most detailed architectural documentation, is required before the treatment of all sites with standing architecture. Site preservation treatments are conducted after the Level 1 documentation. The condition of a stabilized site is then monitored regularly as the final link in the chain of the conservation program.

All recorded archeological sites in Mesa Verde National Park have been divided into eight resource management groups (Table 1.1) based on the general criteria of who built them, where they are located, and what features they contain. The determining characteristics of these site groups are: (1) whether they were produced by Ancestral Puebloan groups, other American Indians, Euro-Americans, or others (2) whether they are located within frontcountry (interpreted and open to the public) or backcountry parts of Mesa Verde National Park; and (3) how much exposed architecture remains.

The sites that received treatment during the summer 2000 season fall into management Group 3, Ancestral Puebloan Backcountry sites with exposed architecture.

Table 1.1. Resource Management Groups

Ancestral Puebloan Sites
Frontcountry Sites. These are locales that are actively interpreted or viewed
(Group 1) Architectural Sites
(Group 2) Sites with no exposed architecture
Backcountry Sites. These are locales with no active interpretive program.
(Group 3) Architectural Sites
(Group 4) Sites with no exposed architecture
Non-Puebloan Sites
Frontcountry Sites. These are locales that are actively interpreted or viewed.
(Group 5) Architectural Sites
(Group 6) Sites with no exposed architecture
Backcountry Sites. These are locales with no active interpretive program.
(Group 7) Architectural Sites
(Group 8) Sites with no exposed architecture

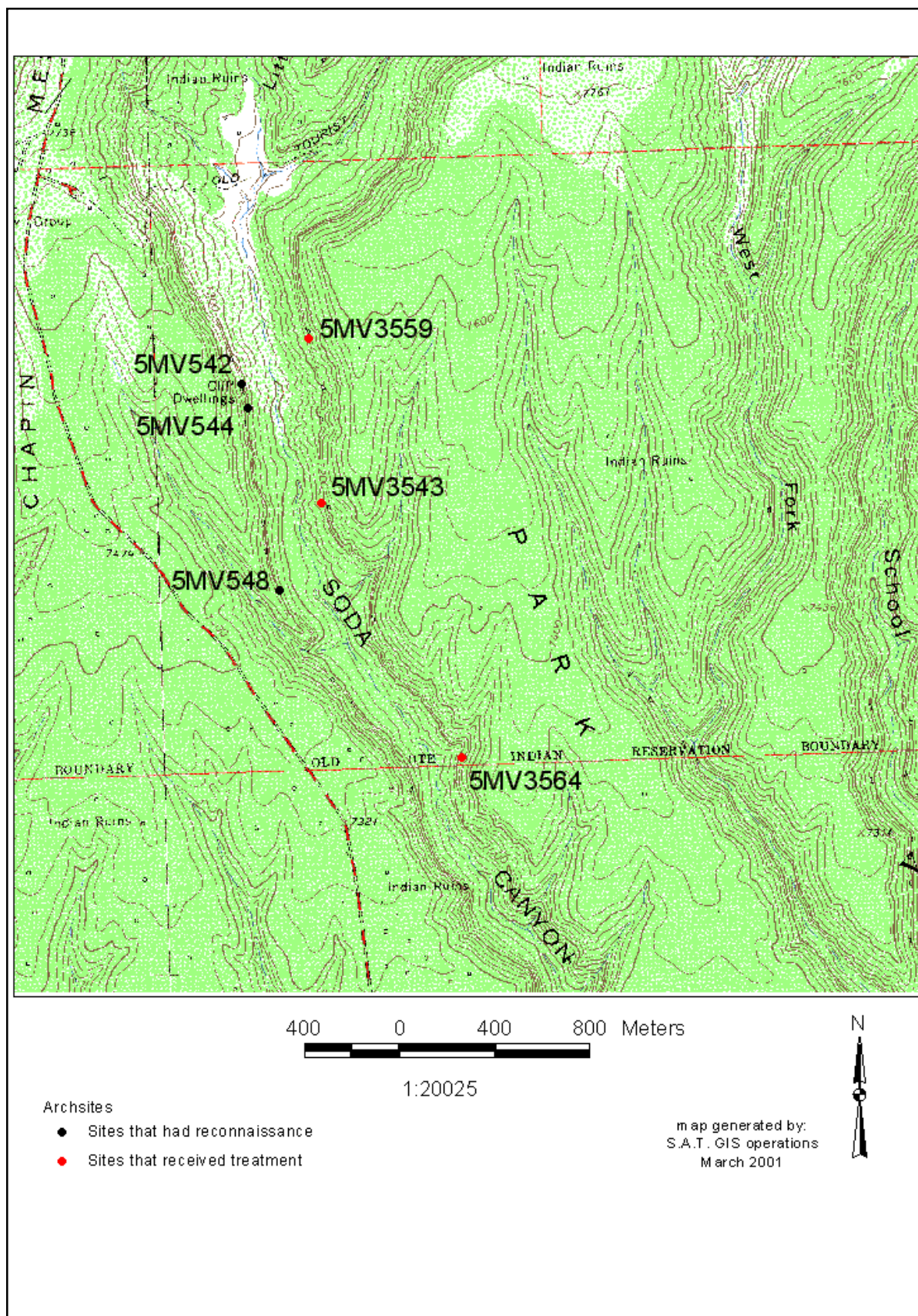


Figure 1.1. Topographic Map of Soda Canyon at Mesa Verde National Park showing location of sites visited during the summer of 2001.

Environment and Setting

The Mesa Verde Complex, of which Soda Canyon is a part, is a system of mesas, cuernas, and canyons that slopes gradually southward from an abrupt north escarpment. Soda Canyon is one of the major drainages, which eventually flow into the Mancos River. Soda Canyon is located along the eastern side of Chapin Mesa. The canyon is characterized by steep walls that contain numerous small alcoves in which the Ancestral Puebloan inhabitants built stone structures.

Vegetation

The Mesa Verde Region is characterized by the pinyon-juniper forest vegetation found throughout the Sierra Madre, Great Basin, and Colorado Plateau. Three separate ecological zones make up the environment of Mesa Verde: mesa top, canyon slope, and canyon floor. The predominant species of trees on the mesa tops are pinyon pine and Utah juniper. The canyon slopes, located below the mesa tops, have relatively open brushy vegetation of gamble oak, serviceberry, and rabbitbrush. Small stands of pinyon and juniper are also scattered on the canyon slopes. The canyon floor is covered with gamble oak and serviceberry. The cliff dwelling sites that were treated in the 2000 field season are within the canyon slope ecological zone (Figure 1.2).

Geology and Soils

The alcoves in Soda Canyon that the Ancestral Pueblo utilized for their building sites are located within the Cliff House Formation. A narrow band of sandy shale splits this sandstone formation. When rainwater percolates through the sandstone, it meets the impermeable shale layer and migrates laterally. This causes the stone to deteriorate at points of exposure and creates alcoves in the Cliff House sandstone.

The mesa topsoil in the Soda Canyon area consists of aeolian silty loams. The soil becomes shallower near the mesa edges, and exposures of the Cliff House sandstone become apparent. The soils on the canyon slopes and canyon bottom of Soda Canyon are comprised of Cliff House sandstone and Menefee shale parent materials, and are colluvial in origin.

Condition Assessment Recommendations

Recommendations for all treated sites and those slated for treatment in 2001 were made in a previous condition assessment report (Bell 1999). Often, there are additional treatments suggested after the stabilization crew has inspected a site prior to starting its work. Reconnaissance visits by the treatment crew assesses material needs and identifies additional areas that may need work.



Figure 1.2. Overview of Site area within Soda Canyon.

Chapter 2

Backcountry Sites Conservation 2000

During the summer field season of 2000, one supervisory archeologist and two masonry workers were hired under the Save America's Treasures (SAT) program to conduct work in Mesa Verde's backcountry. The initial part of the field season was spent on training the new crew in the traditional stabilization techniques used at Mesa Verde National Park.

The archeologist spent part of this time developing documentation forms specifically for documenting the stabilization activities conducted at backcountry sites. These forms were also designed to mesh with the Site Conservation Program Level 1 documentation program. Copies of the completed digitized maps and pertinent photographs were copied for use in the field.

Sites 5MV3559, 5MV3543 and 5MV3564 were stabilized during the summer of 2000. These sites are all located in Soda Canyon; an area that had been burned over during the 1996 Chapin # 5 Fire (Figure 1.1). These sites had Level 2 condition assessment in 1997 and Level 1 documentation in 1998 and 1999. Besides these three sites, three additional sites needing stabilization work were inspected for material estimates and time. Stabilization reconnaissance site forms were completed during the initial site visit and the material needs for each site were assessed. Areas of the site in need of treatment were identified. These three sites were 5MV542, 5MV544 and 5MV548, also located in Soda Canyon (Figure 1.1).

Logistics

All sites that received treatment in the backcountry were fairly easy to access but demanded a long hike to and from the Far View parking lot. Some of the mortar material, water, rubber buckets, and shovels were dropped at predetermined drop sites near the sites by the

Park's helicopter. After the material needs were assessed during the reconnaissance visits, the materials and equipment for each site were assembled at the helibase and loaded into sling nets for the drops. Water was contained in "cubies," 5-gallon water containers commonly used by fire personnel. The soil mix for 5MV03543 was loaded into 5-gallon plastic buckets with lids secured with strapping tape. Since none of the sites required large amounts of materials, small portable containers were utilized for ease in transporting these materials between the helicopter drop zone and the site.

Personnel

The backcountry ruins preservation crew consisted of Noreen R. Fritz (Supervisory Archeologist), Neill Smith, Mark Johannsen, and Harold Peshlakai (Masonry Workers). At 5MV3559, Fritz was responsible for documenting the treatment activities through photography, map overlays, and completion of the documentation forms. Smith, Johannsen, and Peshlakai conducted the treatment activities. They collected, screened, and mixed their own mortar as needed. At 5MV3543, the treatment crew consisted of Fritz, Johannsen, and Smith. Again, Fritz was responsible for all the archeological documentation while Johannsen and Smith implemented the treatments. Fritz and Smith undertook treatments at 5MV3564. Fritz did the documentation and assisted with treatment while Smith did the bulk of the treatment. Both individuals collected and screened mortar material from the creek bank below and packed it up the talus slope and into the site (Table 2.1).

Stabilization Methods and Techniques

The techniques employed consisted of repointing, resetting loose stones, replacing stones, and laying dry-laid masonry. Since all the sites receiving treatment were located in the Park's backcountry, there was minimal intervention treatment. This approach is similar to

Table 2.1. Personnel and Number of Person Days at Each Site

Site Number	Crew Members	Crew Person Days
5MV3559	Fritz, Smith, Johannsen, Peshlakai	8
5MV3543	Fritz, Smith, Johannsen	9
5MV3564	Fritz, Smith	8

treatment applied to a frontcountry site that is open to the public and is visited regularly. The only difference between frontcountry and backcountry sites is the concern for visitor safety. The idea behind a “minimalist” approach to the backcountry sites is to retain site integrity and to preserve what is left of the standing architecture. In the backcountry sites for instance, a fallen wall would not be rebuilt as it might be in a site that is in the frontcountry where it is regularly visited by the public. At some sites where there is a recurring moisture problem, periodic maintenance is required to prevent further loss of the remaining architecture.

Repointing

Repointing refers to the technique of applying a soil mortar over a like mortar; the joints are moistened with water to make the mortar stick. The character of the final joint extension and chinking is matched as closely as possible to the aboriginal mortar (Figure 2.1).

Soil Mortar is a mixture of soil and water. Soil with a high sand content is amended with Rhoplex E-330, an acrylic polymer additive developed for use with portland cement. It is added to soil mortar to increase its weatherability. Rhoplex does not come with a set of instructions for mixing (with soil). However, experiments conducted by Dennis Fenn, a research scientist who worked at the National Park Service’s Western Archeological Center in Tucson, Arizona recommended that the ratio of water to Rhoplex should be 1 part Rhoplex to 2.5 parts water (Hartzler 1996). The stabilization crew at Mesa Verde currently mixes 1 part Rhoplex to 2.5 or 3 parts water.

Chinking is the process of pressing small stones into wet mortar joints. The purpose of these stones can be to level construction elements by keeping walls plumb. Stone-to-stone contact is produced in this process. Chinking stones can be primarily decorative (patterned) but in Mesa Verde, chinking is mainly used to control mortar movement and shrinkage. When chinking stones are added to mortar during treatment activities they consist of either spalls (tabular stones with parallel long faces) or chunks, which are irregularly shaped stones, wedge-shaped or airfoil (Nordby et al 2000:111). Artifacts such as sherds or flaked lithics, although sometimes used prehistorically, are never used during repointing by the stabilization crew.

Resetting

Resetting a loose stone is accomplished by removing the loose stone, cleaning out all loose mortar and dirt then setting the stone back into its original position using new mortar applied to moistened surfaces.

Replacing

Replacing a missing stone or filling a void in a wall is accomplished by locating a suitably sized stone off-site or reusing a displaced wall stone to set within the void. Replacement stones are shaped using a rock hammer and chisel as needed. The sandstone is soft enough that this is an expedient process. The surfaces are moistened; then soil mortar is applied to set the stone flush with the rest of the wall. Every effort is made to match the replacement stone to the original fabric, matching color,



Figure 2.1. Neill Smith and Harold Peshlakai repointing a wall at site 5MV3559.

size, shape and sometimes surface treatment. Freshly cut edges are obscured by the application of a thin wash of mortar.

Dry-laid Masonry

Dry-laid masonry refers to the technique of placing stones snugly into position without the use of mortar.

Specific Methods and Techniques Used in 2000 Field Work

Walls were repointed where extensive loss of the aboriginal mortar was apparent. The intact aboriginal mortar was left in place at all three sites. In the cases where the original mortar was badly eroded, it was replaced. Soil-based mortar was used at all three sites for repointing and stone replacement/relaying. This mortar was applied by hand or with the use of a pointing trowel to fill joints flush and blend in with the existing prehistoric mortar. The mortar was then textured by hand. The joint finish at all three sites was extruded-smooth. Appropriate chinking stones, which match the existing joint finish, were gathered off-site and added to all restored mortar joints to blend in with the existing prehistoric construction. These chinking stones were primarily “spalls.” The color and texture of the aboriginal mortar was matched as closely as possible.

Sometimes the basal portion of a wall needing stabilization is obscured by cultural fill or wind deposited soils that need to be moved before treatment can be undertaken. It was not necessary to excavate through primary cultural deposits at any of the three sites that received treatment to access the base of the walls. In the instances where primary cultural deposits must be disturbed in order to access the base of a wall for stabilization, the excavation would have been carried out in a controlled manner with full documentation of the activity and artifacts encountered. At 5MV3564, approximately 10 cm of eroded sandstone alcove roof material was moved to access the wall base then replaced once treatments were completed. This soil was a post-occupational sterile deposit. The other sites did not require any excavation as part of their treatments.

The ruins preservation crew made every effort to have as little impact as possible on the sites while conducting treatment activities.

Chapter 3

5MV3559

Site 5MV3559 is an Ancestral Puebloan Pueblo II-Pueblo III alcove site consisting of two rooms, two terraces, and a light artifact scatter (Figure 3.1). This site is located on the east side of Soda Canyon at the base of the Cliff House sandstone and the top of the talus slope. The alcove faces west. This site is one of three alcove sites clustered in this area, presumably for storage purposes. The site is located in UTM zone 12, Easting 722400 m, and Northing 4123301 m.

The site was originally recorded in 1976 during the Mesa Verde Archaeological Survey conducted by the University of Colorado, Boulder. The site was identified as a storage facility consisting of two rooms beneath a rock overhang. A rock terrace was also noted on the slope just below the alcove opening. The north wall of Room 1 has a sealed doorway with a mud collar. In 1999, the site was documented to Level 1 architectural documentation standards (Nordby et al. 2000).

Room 1 (5MV3559)

Room 1 is the southernmost room of this two-room site. The room measures 2.30 m-X-1.70 m. The southernmost wall is semi-coursed masonry that is wet-laid. Only some of the stones have been shaped and stone size varies. Only occasional chinking is present and the wall is a single course in width. Seven courses remain on this wall.

The north wall is in good condition. This wall is eleven courses high and there is some patterning and consistent rock size evident. The wall is one course in width. A wall entry is apparent near the east end of this wall. It has an intact adobe collar on the exterior and was walled-in prehistorically.

Room 2 (5MV3559)

Room 2 is only partially intact and is the northernmost of the two rooms. The south wall of this room is also the north wall of Room 1. The dimensions of this room were indeterminate. Part of the west wall of Room 2 is present as well. It is eleven courses high and is built right at the outer edge of the alcove. Much of the mortar is missing and only a few of the chinking stones are still present in the joints.

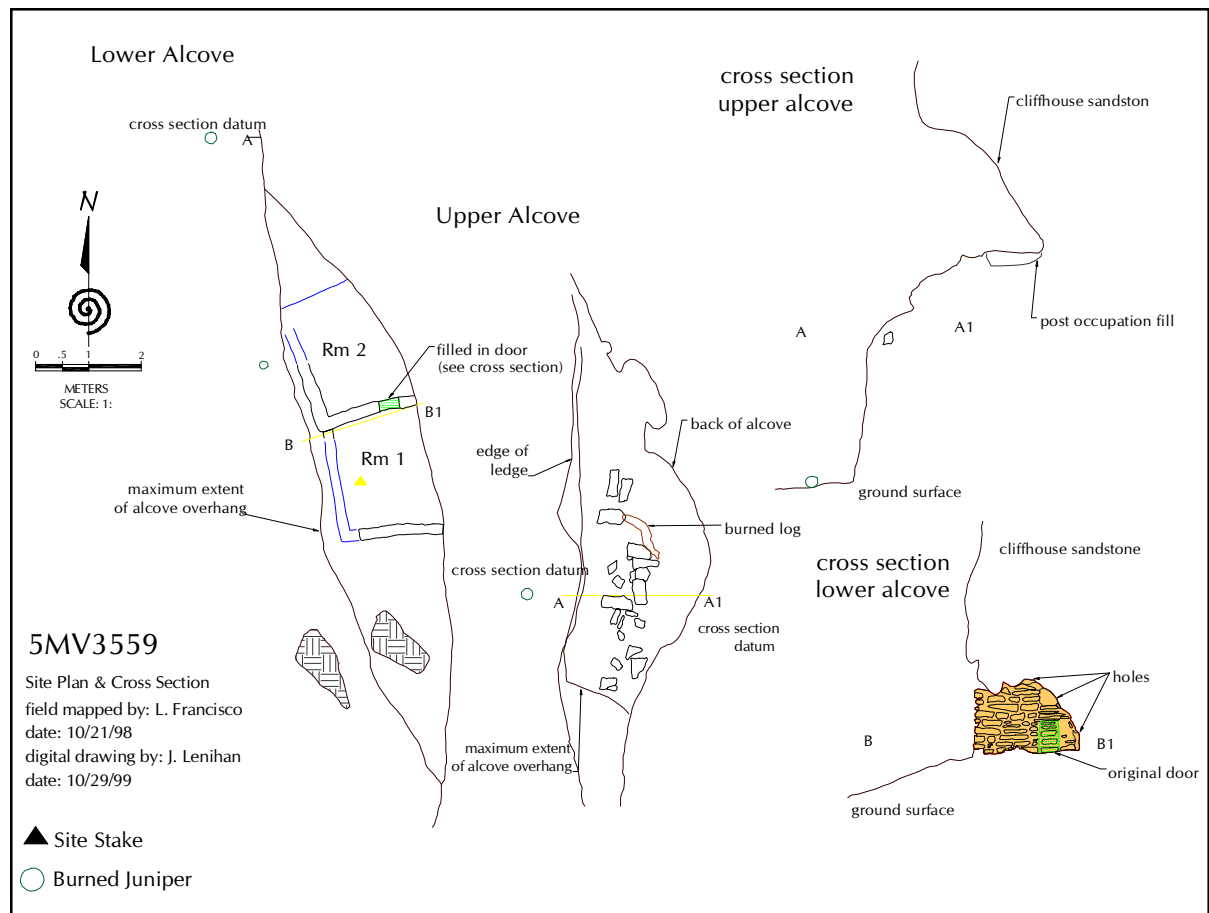


Figure 3.1. Plan View of site 5MV3559 showing cross sections.

Site Condition (5MV3559)

Condition Assessment (Level 2) Recommendations

The condition of site 5MV3559 was assessed in the fall of 1997. The south interior and exterior wall of Room 1 needed repointing along the basal footing. In addition, a void in the wall needed to be filled. Room 2 needed repointing along the western exterior and interior wall. The team also identified the problems with water washing into the site from both the north and south as well as from the sandstone rock face above the site.

Pre-treatment Reconnaissance Assessment

Inspection of 5MV3559 on June 28, 2000 prior to treatment, determined that no moisture was entering the site. At this time the only additional work that the treatment crew determined necessary in addition to what was recommended by the condition assessment crew, was the application of dry-laid stones to bolster a portion of unsupported masonry on the south wall of Room 1.

Site Treatment (5MV3559)

Post Fire Erosion Treatment

In 1997, the condition assessment crew applied a silicone dripline to the edge of the alcove site to deflect the water from running into the site and washing out standing architecture. This was a concern due to enhanced erosion after the 1996 Chapin #5 wildfire. In addition, log deflectors were installed at the north and south ends of the alcove to divert water from washing into the site.

Site Fabric Treatment July 11-13, 2000

Stabilization Materials

The color and texture of the aboriginal mortar was matched as closely as possible. A mortar source was found approximately 5 m northwest of the site (Figure 3.2). This soil matched the aboriginal mortar quite closely; however, it was high in sand content and would be inappropriate for use as an unamended soil mortar. During Dennis Fenn's experiments, he recommended that

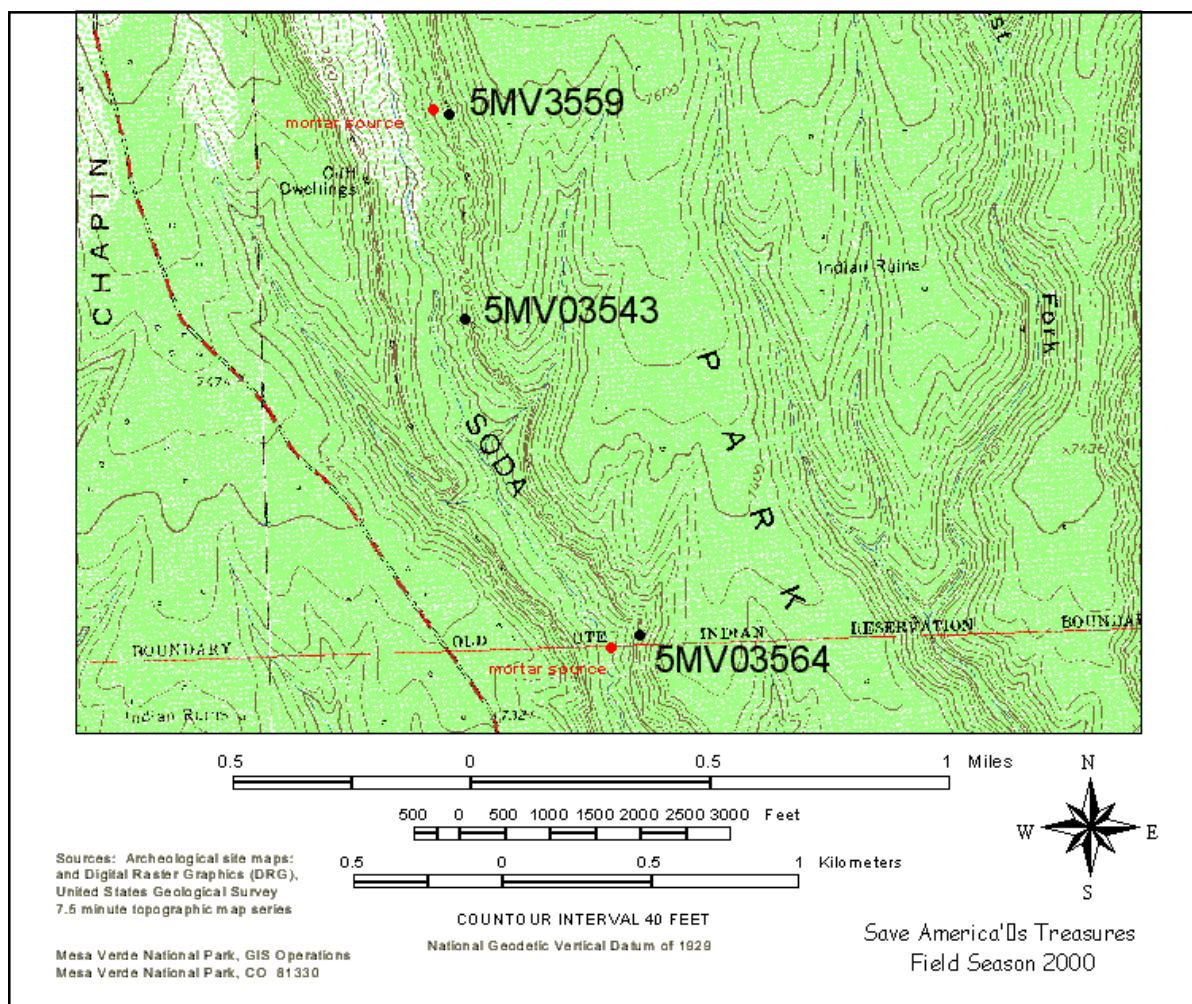


Figure 3.2. Topographic map of Soda Canyon showing location of mortar sources for sites 5MV3559 nad 5MV3564.

Rhoplex worked best with a soil composition that included 70% sand (Hartzler, 1996). Our soil was amended with Rhoplex E-330. This soil mortar was dark yellowish brown (10YR 4/4) while the aboriginal mortar was very pale brown (10YR 7/4). When the replacement mortar dried, it was a very close match to the prehistoric mortar.

The area where we collected soil for use as mortar was rehabilitated when work was completed and will not be obvious by the spring 2001 growing season.

Room 1

On the interior south wall of Room 1, the basal portion of the wall was repointed with one small stone added (replaced) to help fill a void. On the western end of this wall, a large tabular stone had no support from below (Figure 3.3). Two loose wall stones, which were no longer part of the wall construction, and two additional stones were shaped from pieces of spall from the roof of the alcove were dry-laid under the unsupported stone. These stones were stacked one on top of the other and fitted snugly under the hanging tabular stone to provide support. A few smaller stones were used as wedges to

keep the larger ones upright (Figure 3.4).

The exterior south wall of Room 1 was repointed; mainly filling a large void along the base where four large stones were reset (Figure 3.5). Four smaller stones were also used to help fill in a void in the middle basal portion of the wall (Figure 3.6).

The north interior wall of Room 1 was in much better shape and only needed some “spot” repointing along the base.

Room 2

The south wall of Room 2, which is the common wall it shares with Room 1, needed no treatment since nearly all of the aboriginal mortar was still intact.

The west-facing wall of this room needed the most attention in terms of treatment. This wall needed to be completely repointed. Due to its western exposure, there was extensive mortar loss. The wall had only had minimal protection from the alcove overhang (Figure 3.7). There were no loose stones to be reset and no stones needed replacement. A few chinking stones were still present in the prehistoric mortar so new chinking stones were added to match the prehistoric pattern present on



Figure 3.3. Room 1 South Wall Interior, Pre-Treatment.



Figure 3.5. Room 1 South Wall Exterior, Pre-Treatment.



Figure 3.4. Room 1 South Wall Interior, Post-Treatment.



Figure 3.6. Room 1 South Wall Exterior, Post-Treatment.

the exterior wall (Figure 3.8) These chinking stones were mostly spalls. The interior of this west wall needed only minimal repointing. No chinking stones were placed on this side of the wall since none were present in the existing aboriginal mortar.

Neill Smith, Harold Peshlakai and Mark Johannssen conducted treatment work at this site. Noreen Fritz recorded all treatment intervention on overlays of the Level 1 wall profiles plus the pre and post treatment photography and completion of the documentation forms packet. Site treatment was undertaken July 11-13, 2000.



Figure 3.7. Room 2 Exterior West Wall, Pre Treatment.



Figure 3.8. Room 2 Exterior West Wall, Post Treatment.

Chapter 4

5MV3543

Site 5MV03543 is located on the eastern side of Soda Canyon, along a lower escarpment about 7 m high. The University of Colorado survey team initially recorded this site in 1976. It consists of two rooms and an open area situated in an alcove. There is one wall standing above grade at the site. The remainders of the walls have fallen. Most of the fallen masonry stones are eroded. The room measures approximately 1.7 m (N-S)

by 1.6 m (E-W) (Figure 4.1). This site is located in UTM zone 12, Easting 722449 m, and Northing 4122660 m.

This site was initially recorded as a storage room; however, during Level 1 documentation, additional details emerged to suggest otherwise. As previously noted, the site consists of two rooms and an open area. Room 1 was built at the northern end of the alcove, and natural stone forms the north and east walls as well as the ceiling. The floor of this room is now covered with rodent excrement, rubble from fallen walls, probably some cultural fill, but mostly colluvial sediment. The south wall has fallen to grade, and its precise position is unknown.

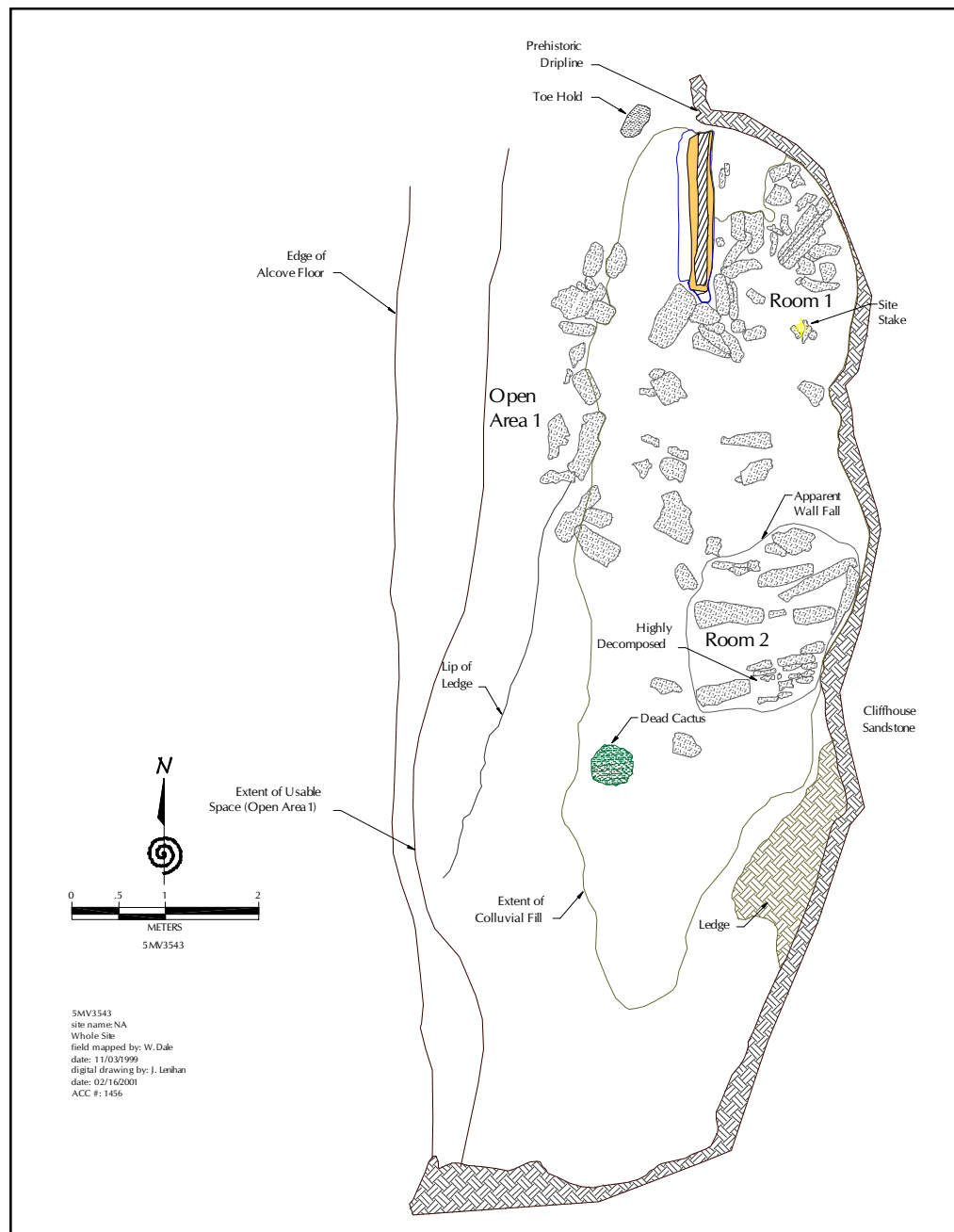


Figure 4.1. Plan View of Site 5MV3543.

Room 1 (5MV3543)

The west wall of Room 1 is the only architecture standing above grade. This wall stands to a height of about 1.7 m. It has probably been assaulted continually by rainwater. Along the alcove face at the exterior of Room 1 is an elongate vertical groove that served to divert runoff coming down the cliff in an attempt to save the wall and keep the water out of Room 1 during the prehistoric period.

The west wall of Room 1 is composed of single stone construction, mostly of unshaped stone. The mortar joints are completely and heavily chinked both interior and exterior. No plaster is present. The stone used for construction of the lower courses are larger than on the remainder of the wall but the size differential is more pronounced on the exterior where the masonry basal footing elements are more exposed.

Room 1 is connected to Open Area 1 by a doorway designated as Wall Entry 1 (WE1). This doorway contains important interpretive information about the site. Granaries normally have closure slabs that were emplaced from the exterior but WE1 was sealed by a closure slab from the interior, based on the shaping and wear upon the stones lining the jambs. The size of this room conforms well to the small size of granaries, although the dubious location of the south wall introduces some uncertainty about room size.

Room 2 (5MV3543)

Room 2 was located against the alcove to the south of Room 1 and probably shared a wall with Room 1. Only the width of this room was measurable at about 1.5 m. This room probably enclosed an area between 3.5 and 4.5 square meters. The room is now covered with sediment and rubble and the floor is covered. The alcove ceiling above the rubble that probably represents the south wall of Room 2. The oxidation predates the Chapin #5 fire (1996) since it was noted during the University of Colorado Survey in 1976. Since the natural alcove ceiling formed the roof of this room, it is probable that this room was a living/habitation room that had a hearth.

Another factor that supports the assessment of Room 2 as a living room is the closure from the interior of WE1. If Room 1 was a granary, then a doorway in the now fallen south wall that connected it with Room 2 is likely. That doorway would have sealed from the exterior, or the Room 2 side. This would create a room suite with Room 2 as the lead living room in that suite.

Open Area 1 (5MV3543)

The final element of this site is Open Area 1. This open area is the elongate ledge that defines the western side of the site. It was most likely defined along the east side by the west wall of Rooms 1 and 2. The eastern boundary was defined by the west walls of Rooms 1 and

2. This area is approximately 11.5 m long and 1.9 m wide. The headroom above Open Area 1 is over 2 m, adequate for an individual to travel this ledge without crouching. The treatment crew noticed a pecked foothold on the ledge adjacent to the northern edge of the standing wall.

The site can be accessed by climbing up a steep drainage south of the site, traveling along the mesa top then dropping in from above. The treatment crew decided to enter the site from the ledges below utilizing a rope ladder and a rope to ascend the two rock ledges.

Site Condition (5MV3543)

Condition Assessment (Level 2) Recommendations

The condition assessment crew visited 5MV3543 in 1997. They noted that the one standing wall suffered from basal erosion as the wall was exposed directly to weather. The alcove affords only minimal protection. This alcove has a western exposure and is often hammered by incoming weather fronts. The proximity of the wall to the outer edge of the alcove contributed to the basal erosion as water from the alcove dripline was running down directly onto the wall (Figure 4.3).

At 5MV3543, the condition assessment crew identified the basal course of the only wall standing (Room 1, west wall) as needing repointing. In addition, the northern end of the same wall was suffering from severe mortar loss (Figure 4.2).

Pre-Treatment Reconnaissance Assessment

A reconnaissance visit to this site was done on July 6, 2000. The site was assessed for the amounts of materials needed to implement the treatment. These materials were dropped by helicopter above the site a few days later.

When the treatment crew inspected the site, differential fill was noted inside of the structure. However, the fill was not in direct contact with the standing wall and was not holding moisture up against the masonry.

Site Treatment (5MV3543)

Post Fire Erosion Treatment

The condition assessment crew applied a silicone dripline to the alcove above the existing wall to deflect the water that was splashing onto the foundation of the wall and dissolving mortar. This action was taken in the fall of 1998 and was the only treatment done before 2000. The dripline is very effective at keeping water from dripping onto the walls.



Figure 4.2. Site overview looking North.

Site Fabric Treatment July 17-19, 2000

Stabilization Materials (5MV3543)

A mortar source near the site was not located so a soil mix for the site was concocted with two parts yellow crusher fines from Chapin Mesa, one part red loess from Wetherill Mesa and one part white caliche soil from Chapin Mesa. This soil was amended with Rhoplex E-330. This soil color was a close match to the aboriginal mortar although it was slightly lighter in color. The prehistoric mortar was a pale brown or “yellow.”

Room 1 West Wall (5MV3543)

Smith, Johannssen and Fritz did treatment work at 5MV3543 July 17-19, 2000. Smith and Johannssen did the repointing, rock shaping, replacement, and the filling of voids on this wall. All work was done to the west-facing exterior. Fritz was responsible for the photo documentation, mapping and the completion of the forms packet.

Treatment intervention on this wall consisted of repointing along the basal joints, adding chinking stones to match the original construction techniques. In addition to this, four stones were added to fill a void between the basal and first courses; only three of these are visible. Two stones were also used to fill a void between the north end of the first wall course and the alcove wall. These stones were chipped to shape where necessary (Figure 4.4).



Figure 4.3. Room 1 Exterior West Wall, Pre-Treatment.



Figure 4.4. Room 1 Exterior West Wall, Post Treatment.

Chapter 5

5MV3564

This site was originally recorded in 1976. It is located in the lower level of the Cliff House sandstone band. Site location is on the east side of Soda Canyon near the southwest junction of a side drainage, which comes into Soda Canyon from the east. The site is located in UTM zone 12, Easting 723090 m and Northing 4121385 m.

The interior of the alcove is approximately 5 m in length east to west with a ceiling height of 1.8 m at the highest point. The structure is located in the southwestern corner of the alcove (Figure 5.1). The site probably dates to the Ancestral Puebloan Pueblo III period as evidenced by the finely pecked masonry and careful chinking and mortaring.

Site 5MV3564 consists of a single standing north-south wall (Room 1, east wall) which is nine courses high, one course wide and approximately 1 m in length. In addition, a mound of dirt and rubble is present just outside of the alcove. The wall is constructed of well-pecked sandstone blocks averaging 40 x 20 cm. The wall segment contains a doorway and includes the jamb and sill. Two small wooden pegs form the base support for a lintel above the doorway. They may also have been part of a doorstep. The pegs are approximately 2 cm in diameter and 10 cm in length (Figures 5.2) (Figure 5.3). Another wall abutted the standing wall but has since collapsed. This formed the north wall. It appears to have stood 9-10 courses in height and was approximately 2 m in length. The west and south walls are the natural back wall of the alcove.

Just to the north of the standing wall, a mound of dirt and rubble rests just outside the alcove. The mound is

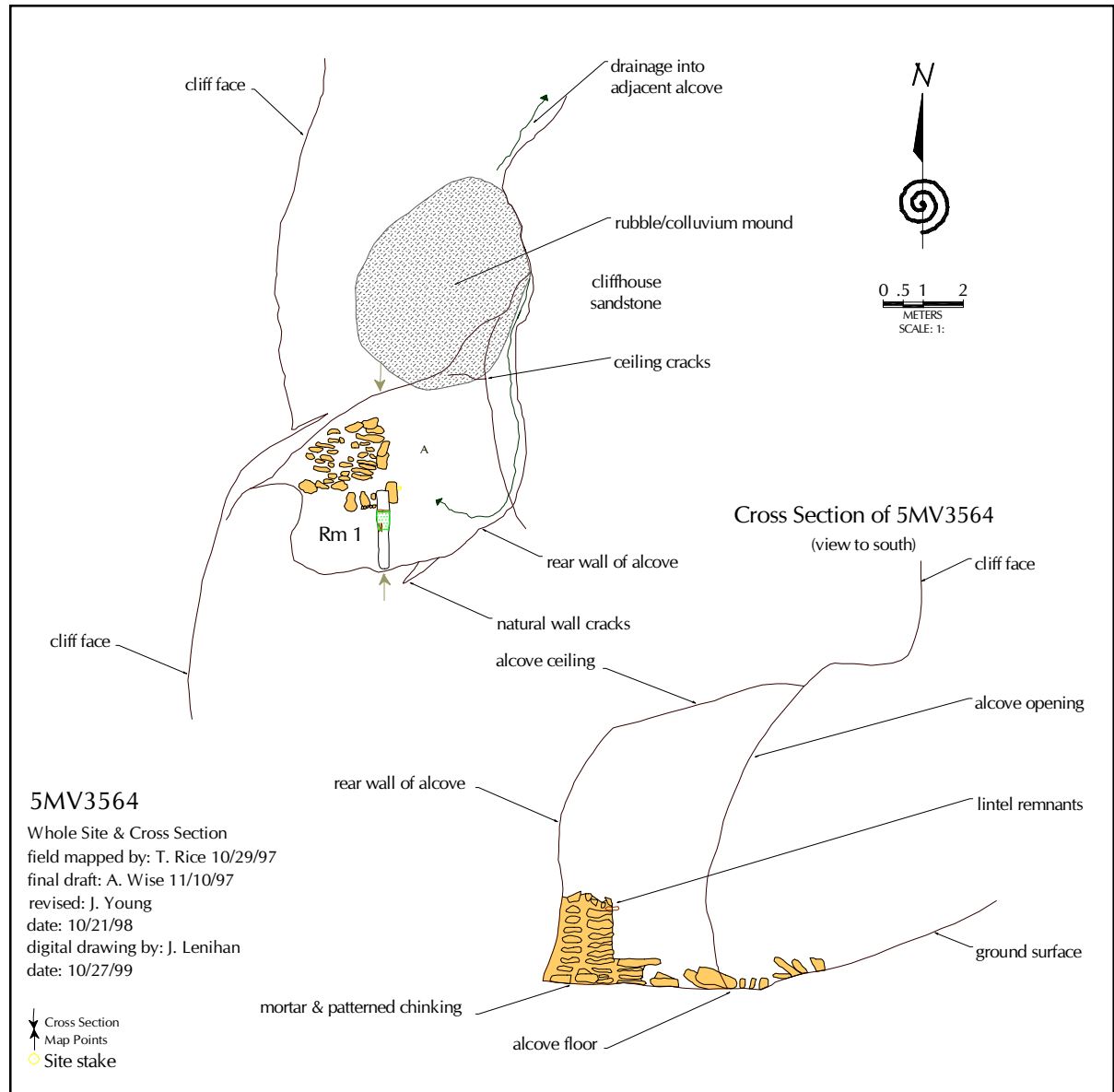


Figure 5.1. Plan View of site 5MV3564.



Figure 5.2. Room 1 Exterior East Wall, Pre-Treatment.



Figure 5.3. Room 1 Interior East Wall, Pre-Treatment.

approximately 1 m high and may contain some wall outlines, although they are difficult to discern. Some of the material, which makes up the mound, has fallen off the steep cliff ledge adjacent to the site.

Site access was somewhat problematic since it is located at the top of a steep talus slope with a skinny ledge leading into the site from the southwest side.

Site Condition (5MV3564)

Condition Assessment (Level 2) Recommendations

This site was assessed for damage after the fire in 1996. At that time, it was noted that water was running into the alcove from outside. Rainwater and alcove run-off hit the south edge of the mound. From there, it flowed southward toward the standing wall. A small bit of gulling occurred because of the water flow path. The existing wall was constructed near the back of the alcove, and during a heavy rain, the water collected along the base of this wall, dissolving the mortar. When the site was initially recorded in 1976, a notation on the map indicates that there is mortar loss at the base of the wall. However, this mortar loss is not discernible in the 1976 photograph.

Pre-Treatment Reconnaissance Assessment

The reconnaissance visit to 5MV03564 was conducted on August 28, 2000 in combination with the treatment. No additional work other than the recommended repointing along the base was determined necessary.

Site Treatment (5MV3564)

Post Fire Erosion Treatment

In 1998, the Condition Assessment crew installed silt logs just inside the overhang to divert water run-off and carpeted the floor of the alcove with excelsior (composed of aspen wood shavings encased in a biodegradable mesh) mulch. These actions have prevented any more water from running into the alcove.

Site Fabric Treatment August 28-31, 2000

Stabilization Materials (5MV3564)

A helicopter was not available for an equipment drop so all treatment materials (including buckets, masonry tools, soil, water, etc.) were packed into the site. Prior to treatment, a match for the prehistoric mortar was not located near the site but soil with a high enough silt/clay content was located in the bank of Soda Creek, approximately 100 m downslope to the west (Figure 3.2). A sample test “patty” was made and seemed to be of the proper consistency/hardness for replacement mortar. The color however was somewhat darker than the aboriginal mortar. To lighten the appearance, the wet mortar was dusted with fine sand eroded from the alcove ceiling. When dried, the mortar was a closer match to the aboriginal mortar. Since this alcove is now dry, and the structure is located in the back of the alcove, an unamended mortar was used.

Room 1, East Wall (5MV3564)

Treatment took place from August 28 through 31, 2000. Both Neill Smith and Noreen Fritz treated this site (Figure 5.4). The bottom two basal courses of the

east wall of Room 1 were repointed. Two voids were filled with three stones and a void on the east exterior was filled with a replaced stone (Figure 5.5) (Figure 5.6). In addition, Fritz was responsible for photo and mapping documentation, and completion of the forms.



Figure 5.4. Neill Smith repointing the exterior east wall of Room 1.



Figure 5.5. Room 1 exterior east wall, post treatment.



Figure 5.6. Room 1 interior east wall, post treatment.

Chapter 6

Stabilization Reconnaissance Work

Reconnaissance visits to three sites were made done in tandem with the treatments at 5MV3559, 5MV3543 and 5MV3564. The sites that have had preliminary treatment assessments are 5MV542, 5MV544 and 5MV548. 5MV542 was visited and the pre-treatment photographic documentation was completed on August 3, 2000. At this time, amounts of treatment materials were assessed and the site stabilization reconnaissance form was completed.

Two of the three sites, that only received reconnaissance, were very difficult to access. Site 5MV544 and 5MV548 can only be accessed by rappelling from above. This was achieved by accompanying the backcountry Level 1 documentation crew on two different days at these sites.

5MV542

Site 5MV542 received treatment during the fall of 1998; however the crew ran out of dirt before the repairs had been completed and the helicopter had left the Park for the season. Portions of the site were revisited in 2000 and assessed for materials needed to continue the stabilization work. This site is fairly easy to access since the lowermost alcove is located at the top of the talus slope. Accessing the middle and upper alcoves of this site are a little more problematic, a ladder is useful for climbing from the bottom alcove into the second one. The third alcove can be accessed by climbing up a rock crevice north of the site or by coming in from the mesa top. The only portion of this site which needs stabilization work is in the middle alcove. Work in the upper alcove was completed in 1998 and the lowermost alcove does not contain enough standing architecture to warrant any type of treatment.

5MV544

Fritz, Johannsen, and Smith visited 5MV544 on June 28, 2000. At this time, a reconnaissance form was completed; documenting areas of the site where treatment was needed and an assessing the amounts of materials needed to complete the job.

5MV548

Fritz, Smith, and Johannsen completed the reconnaissance visit of 5MV548 on August 24, 2000. All areas of the site needing treatment intervention were noted along with an estimation of the amounts of materials needed.

Chapter 7

Summary and Conclusions

Three cliff dwellings in the backcountry of Mesa Verde National Park were stabilized in 2000. All three sites were located in Soda Canyon. One room/wall was treated in each of two sites, 5MV3543 and 5MV3564. Two rooms were treated in site 5MV3559. A mud mortar amended with Rhoplex E-330 (an acrylic polymer) was used at 5MV3559 and 5MV3543 while an unamended mud mortar was utilized at 5MV3564. The crew also made pre-treatment reconnaissance visits to sites 5MV542, 5MV544 and 5MV548.

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